


**Listing of claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:

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- (a) a nucleotide sequence encoding a polypeptide comprising amino acids from about -40 to about 615 in SEQ ID NO:2;
  - (b) a nucleotide sequence encoding a polypeptide comprising amino acids from about -39 to about 615 in SEQ ID NO:2;
  - (c) a nucleotide sequence encoding a polypeptide comprising amino acids from about 1 to about 615 in SEQ ID NO:2;
  - (d) a nucleotide sequence encoding a polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 209037;
  - (e) a nucleotide sequence encoding the mature TR9 polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 209037;
  - (f) a nucleotide sequence encoding the TR9 extracellular domain;
  - (g) a nucleotide sequence encoding the TR9 transmembrane domain;
  - (h) a nucleotide sequence encoding the TR9 intracellular domain;
  - (i) a nucleotide sequence encoding the TR9 receptor extracellular and intracellular domains with all or part of the transmembrane domain deleted;
  - (j) a nucleotide sequence encoding the TR9 death domain; and
  - (k) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b), (c), (d), (e), (f), (g), (h), (i), or (j).

2-13. (Cancelled)


14. (Original) An isolated nucleic acid molecule comprising a polynucleotide having a sequence at least 95% identical to a sequence selected from the group consisting of:

- (a) the nucleotide sequence of clone HIBEJ86R (SEQ ID NO:6);

- (b) the nucleotide sequence of clone HL1AA79R (SEQ ID NO:7);
- (c) the nucleotide sequence of clone HHFGD57R (SEQ ID NO:8);
- (d) the nucleotide sequence of clone HSABG38R (SEQ ID NO:9);
- (e) the nucleotide sequence of clone HHPDZ31R (SEQ ID NO:10);
- (f) the nucleotide sequence of a portion of the sequence shown in SEQ ID NO:1 wherein said portion comprises at least 50 contiguous nucleotides from nucleotide 500 to nucleotide 980; and
- (g) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b), (c), (d), (e), or (f) above.

15-19. (Cancelled)

20. (Original) An isolated TR9 polypeptide having an amino acid sequence at least 95% identical to a sequence selected from the group consisting of:

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- ~~(a)~~ amino acids from about -40 to about 615 in SEQ ID NO:2;
  - (b) amino acids from about -39 to about 615 in SEQ ID NO:2;
  - (b) amino acids from about 1 to about 615 in SEQ ID NO:2;
  - (d) the amino acid sequence of the TR9 polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 209037;
  - (e) the amino acid sequence of the mature TR9 polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 209037;
  - (f) the amino acid sequence of the TR9 receptor extracellular domain;
  - (g) the amino acid sequence of the TR9 receptor transmembrane domain;
  - (h) the amino acid sequence of the TR9 receptor intracellular domain;
  - (i) the amino acid sequence of the TR9 receptor intracellular and extracellular domains with all or part of the transmembrane domain deleted;
  - (j) the amino acid sequence of the TR9 receptor death domain; and
  - (k) the amino acid sequence of an epitope-bearing portion of any one of the polypeptides of (a), (b), (c), (d), (e), (f), (g), (h), (i), or (j).

21-24. (Cancelled)

25. (New) An isolated antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

- (a) a protein consisting of amino acid residues -40 to 615 of SEQ ID NO:2;
- (b) a protein consisting of amino acid residues 1 to 615 of SEQ ID NO:2;
- (c) a protein consisting of amino acid residues 1 to 310 of SEQ ID NO:2;
- (d) a protein consisting of amino acid residues 27 to 171 of SEQ ID NO:2; and
- (e) a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 30 contiguous amino acid residues of SEQ ID NO:2.

26. (New) The antibody or fragment thereof of claim 25 that specifically binds protein (a).

27. (New) The antibody or fragment thereof of claim 25 that specifically binds protein (b).

28. (New) The antibody or fragment thereof of claim 25 that specifically binds protein (c).

29. (New) The antibody or fragment thereof of claim 25 that specifically binds protein (d).

30. (New) The antibody or fragment thereof of claim 25 that specifically binds protein (e).

31. (New) The antibody or fragment thereof of claim 26 that specifically binds protein (b).

32. (New) The antibody or fragment thereof of claim 30 that specifically binds a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 50 contiguous amino acid residues of SEQ ID NO:2.

33. (New) The antibody or fragment thereof of claim 25 wherein said protein bound by said antibody or fragment thereof is glycosylated.

34. (New) The antibody or fragment thereof of claim 25 which is a human antibody.

35. (New) The antibody or fragment thereof of claim 25 which is a polyclonal antibody.

36. (New) The antibody or fragment thereof of claim 25 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a humanized antibody;
- (c) a single chain antibody; and
- (d) an Fab fragment.

37. (New) The antibody or fragment thereof of claim 25 which is labeled.

38. (New) The antibody or fragment thereof of claim 25 which is radiolabeled

39. (New) The antibody or fragment of claim 25 which is biotinylated.

40. (New) The antibody or fragment of claim 25 which is conjugated to a therapeutic or cytotoxic agent.

41. (New) The antibody or fragment thereof of claim 25, wherein the antibody or fragment thereof agonizes TR9 signaling.

42. (New) The antibody or portion thereof of claim 25 which is fused to a heterologous polypeptide.

43. (New) The antibody of claim 25 which is attached to a solid support.

44. (New) The antibody or fragment thereof of claim 25 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

45. (New) The antibody or fragment thereof of claim 25 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

46. (New) An isolated cell that produces the antibody or fragment thereof of claim 25.

47. (New) A hybridoma that produces the antibody or fragment thereof of claim 25.

48. (New) A method of detecting TR9 protein in a biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 25; and
- (b) detecting the TR9 protein in the biological sample.

49. (New) The method of claim 48 wherein the antibody or fragment thereof is a polyclonal antibody.

50. (New) An isolated monoclonal antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

- (a) a protein consisting of amino acid residues -40 to 615 of SEQ ID NO:2;
- (b) a protein consisting of amino acid residues 1 to 615 of SEQ ID NO:2;
- (c) a protein consisting of amino acid residues 1 to 310 of SEQ ID NO:2;
- (d) a protein consisting of amino acid residues 27 to 171 of SEQ ID NO:2; and
- (e) a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 30 contiguous amino acid residues of SEQ ID NO:2.

51. (New) The antibody or fragment thereof of claim 50 that specifically binds protein (a).

52. (New) The antibody or fragment thereof of claim 50 that specifically binds protein (b).

53. (New) The antibody or fragment thereof of claim 50 that specifically binds protein (c).

54. (New) The antibody or fragment thereof of claim 50 that specifically binds protein (d).

55. (New) The antibody or fragment thereof of claim 50 that specifically binds protein (e).

56. (New) The antibody or fragment thereof of claim 51 that specifically binds protein (b).

57. (New) The antibody or fragment thereof of claim 55 that specifically binds a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 50 contiguous amino acid residues of SEQ ID NO:2.

58. (New) The antibody or fragment thereof of claim 50 wherein said protein bound by said antibody or fragment thereof is glycosylated.

59. (New) The antibody or fragment thereof of claim 50 which is a human antibody.

60. (New) The antibody or fragment thereof of claim 50 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a humanized antibody;
- (c) a single chain antibody; and
- (d) an Fab fragment.

61. (New) The antibody or fragment thereof of claim 50 which is labeled.

62. (New) The antibody or fragment thereof of claim 50 which is radiolabeled

63. (New) The antibody or fragment of claim 50 which is biotinylated.

64. (New) The antibody or fragment of claim 50 which is conjugated to a therapeutic or cytotoxic agent.

65. (New) The antibody or fragment thereof of claim 50 wherein the antibody or fragment thereof agonizes TR9 signaling.

66. (New) The antibody or portion thereof of claim 50 which is fused to a heterologous polypeptide.

67. (New) The antibody of claim 50 which is attached to a solid support.

68. (New) The antibody or fragment thereof of claim 50 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

69. (New) The antibody or fragment thereof of claim 50 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

70. (New) An isolated cell that produces the antibody or fragment thereof of claim 50.

71. (New) A hybridoma that produces the antibody or fragment thereof of claim 50.

72. (New) A method of detecting TR9 protein in a biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 50; and
- (b) detecting the TR9 protein in the biological sample.

73. (New) An isolated antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

- (a) a protein consisting of the full-length polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037;
- (b) a protein consisting of the mature form of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037;
- (c) a protein consisting of the extracellular domain of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037;
- (d) a protein consisting of the cysteine rich domain of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037; and
- (e) a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037, wherein said portion comprises at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037.

74. (New) The antibody or fragment thereof of claim 73 that specifically binds protein (a).

75. (New) The antibody or fragment thereof of claim 73 that specifically binds protein (b).

76. (New) The antibody or fragment thereof of claim 73 that specifically binds protein (c).

77. (New) The antibody or fragment thereof of claim 73 that specifically binds protein (d).

78. (New) The antibody or fragment thereof of claim 73 that specifically binds protein (e).

79. (New) The antibody or fragment thereof of claim 74 that specifically binds protein (b).

80. (New) The antibody or fragment thereof of claim 78 that specifically binds a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037, wherein said portion comprises at least 50 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037.

81. (New) The antibody or fragment thereof of claim 73 wherein said protein bound by said antibody or fragment thereof is glycosylated.

82. (New) The antibody or fragment thereof of claim 73 which is a human antibody.

83. (New) The antibody or fragment thereof of claim 73 which is a polyclonal antibody.

84. (New) The antibody or fragment thereof of claim 73 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a humanized antibody;
- (c) a single chain antibody; and
- (d) an Fab fragment.

85. (New) The antibody or fragment thereof of claim 73 which is labeled.

86. (New) The antibody or fragment thereof of claim 73 which is radiolabeled

87. (New) The antibody or fragment of claim 73 which is biotinylated.

88. (New) The antibody or fragment of claim 73 which is conjugated to a therapeutic or cytotoxic agent.



89. (New) The antibody or fragment thereof of claim 73, wherein the antibody or fragment thereof agonizes TR9 signaling.

90. (New) The antibody or portion thereof of claim 73 which is fused to a heterologous polypeptide.

91. (New) The antibody of claim 73 which is attached to a solid support.

92. (New) The antibody or fragment thereof of claim 73 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

93. (New) The antibody or fragment thereof of claim 73 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

94. (New) An isolated cell that produces the antibody or fragment thereof of claim 73.

95. (New) A hybridoma that produces the antibody or fragment thereof of claim 73.

96. (New) A method of detecting TR9 protein in a biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 73; and
- (b) detecting the TR9 protein in the biological sample.

97. (New) The method of claim 96 wherein the antibody or fragment thereof is a polyclonal antibody.

98. (New) An isolated monoclonal antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

- (a) a protein consisting of the full-length polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037;
- (b) a protein consisting of the mature form of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037;
- (c) a protein consisting of the extracellular domain of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037;

- (d) a protein consisting of the cysteine rich domain of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037; and
- (e) a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037, wherein said portion comprises at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037.

99. (New) The antibody or fragment thereof of claim 98 that specifically binds protein (a).

100. (New) The antibody or fragment thereof of claim 98 that specifically binds protein (b).

101. (New) The antibody or fragment thereof of claim 98 that specifically binds protein (c).

102. (New) The antibody or fragment thereof of claim 98 that specifically binds protein (d).

103. (New) The antibody or fragment thereof of claim 98 that specifically binds protein (e).

104. (New) The antibody or fragment thereof of claim 99 that specifically binds protein (b).

105. (New) The antibody or fragment thereof of claim 103 that specifically binds a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037, wherein said portion comprises at least 50 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 209037.

106. (New) The antibody or fragment thereof of claim 98 wherein said protein bound by said antibody or fragment thereof is glycosylated.

107. (New) The antibody or fragment thereof of claim 98 which is a human antibody.

108. (New) The antibody or fragment thereof of claim 98 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a humanized antibody;
- (c) a single chain antibody; and
- (d) an Fab fragment.

109. (New) The antibody or fragment thereof of claim 98 which is labeled.

110. (New) The antibody or fragment thereof of claim 98 which is radiolabeled.

111. (New) The antibody or fragment of claim 98 which is biotinylated.

112. (New) The antibody or fragment of claim 98 which is conjugated to a therapeutic or cytotoxic agent.

113. (New) The antibody or fragment thereof of claim 98, wherein the antibody or fragment thereof agonizes TR9 signaling.

114. (New) The antibody or portion thereof of claim 98 which is fused to a heterologous polypeptide.

115. (New) The antibody of claim 98 which is attached to a solid support.

116. (New) The antibody or fragment thereof of claim 98 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

117. (New) The antibody or fragment thereof of claim 98 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

118. (New) An isolated cell that produces the antibody or fragment thereof of claim 98.

119. (New) A hybridoma that produces the antibody or fragment thereof of claim 98.

120. (New) A method of detecting TR9 protein in a biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 98; and
- (b) detecting the TR9 protein in the biological sample.

121. (New) An isolated antibody or fragment thereof that specifically binds a TR9 protein expressed on the surface of a cell comprising a polynucleotide encoding amino acids 1 to 310 of SEQ ID NO:2 operably associated with a regulatory sequence that controls the expression of said polynucleotide.

122. (New) The antibody or fragment thereof of claim 121 which is a monoclonal antibody.

123. (New) The antibody or fragment thereof of claim 121 which is a human antibody.

124. (New) The antibody or fragment thereof of claim 121 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a polyclonal antibody;
- (c) a humanized antibody;
- (d) a single chain antibody; and
- (e) an Fab fragment.

125. (New) The antibody or fragment thereof of claim 121 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

126. (New) The antibody or fragment thereof of claim 121 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.